



# Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

## STATUS OF PIPING PLOVERS IN MASSACHUSETTS - 1991 SUMMARY

Observers reported a total of 160 breeding pairs of Piping Plovers (*Charadrius melodus*) at 55 sites in Massachusetts in 1991 (Table 1). This is by far the largest number of breeding pairs recorded in Massachusetts since we began comprehensive statewide surveys in 1985 (Table 2). The increase over the 1990 total of 140 pairs was largely due to an increase from 31 to 51 pairs at sites on outer (lower) Cape Cod. Observer effort in 1991, measured as number of sites surveyed and intensity of census effort at each site, was roughly comparable to that since 1986.

Breeding pairs are defined as pairs observed with either a nest or unfledged chicks or that exhibit site tenacity and evidence of pair bonding and territoriality. In at least 3 instances, pairs that nested unsuccessfully apparently moved to new sites and renested. Each of these pairs was included in the count of pairs at each site where it occurred, but was only counted once in the overall state total.

Observers reported only 7 individuals that appeared to be unpaired adults. Without benefit of colorbands, it is nearly impossible to determine for certain whether a given individual remains unpaired throughout the entire breeding season. However, this low estimate seems to support the opinion held by most observers that unpaired birds account for  $\leq 5\%$  of the adult population in Massachusetts in any given year.

In addition to estimating total breeding pairs over the entire season, cooperators also counted pairs at all but 2 known sites and a number of potential sites during 1-9 June, the census window established for the 1991 International Piping Plover Census. Two sites accounting for 4 pairs were censused on 10 June. This continues the effort begun in 1990 to obtain a "snap-shot" count during a narrow window at the peak of the nesting season that minimizes double-counting and provides a more precise index of population trends than does the total count. A total of 148 pairs were counted during the 1991 index count, 92% of the season total of 160 pairs (Table 1). In 1990, 111 pairs (79% of the season total of 140 pairs) were counted during a 7-day index count from 27 May to 2 June (Table 2). Four factors may account for the greater



disparity between index and total counts in 1990 than in 1991: 1) the index count period in 1990 was only 7 days long, compared to 10 days in 1991, 2) nest loss to overwash was greater in 1990 than in 1991, possibly resulting in more pairs moving between sites and either being missed during the index count or double-counted at multiple sites over the entire season, 3) the index count was a week earlier in 1990 and may have missed some late arrivals, 4) census intensity during the index count on outer Cape Cod was slightly greater in 1991 than in 1990.

I believe the results of both counts indicate a real and substantial increase in number of breeding pairs between 1990 and 1991. The actual population of breeding Piping Plovers in Massachusetts probably falls somewhere between the index and total counts of 148 and 160 pairs.

Mean number of pairs per site in 1991 was 2.9 (range = 1-12). Maximum numbers of pairs occurred at Crane Beach (12), Little Beach/Barney's Joy (12), Nauset Spit (8), Coast Guard Beach (7), Cuttyhunk Island (7), Horseneck Beach (7), Parker River NWR (6), and Great Point, Nantucket (6). Together these 8 sites accounted for 41% of the state's population. Forty-two of 55 sites had  $\leq 3$  pairs and accounted for 45% of the state total.

Overall mean productivity for Massachusetts in 1991 was 1.72 chicks fledged per pair, based on estimates of fledging success for 156 of 160 (98%) pairs at 54 of 55 sites (Table 1). This is the highest and most complete estimate of productivity recorded since we began compiling these data in 1987 (Table 2). Productivity estimates for specific regions of the state were as follows: North Shore (2.21 chicks fledged/pair), South Shore (1.00), Upper Cape (1.95), Lower Cape (2.35), Buzzards Bay (1.16), Martha's Vineyard/Elizabeth Islands (1.35), and Nantucket (0.91). A chick was considered fledged if it survived  $\geq 25$  days or was observed in flight, whichever came first.

This year's increases in abundance and productivity comes as the result of continued intensive management at many sites. Thanks to all the individuals, agencies, and conservation organizations that participated in conservation efforts for Piping Plovers and other beach-nesting birds in Massachusetts in 1991.

Data compiled by Scott M. Melvin  
15 November 1991

Table 1. Abundance, distribution, and productivity of piping plovers in Massachusetts, 1991.

| Location                                 | Index<br>count <sup>a</sup> | Total<br>count <sup>b</sup> | No.<br>chicks<br>fledged <sup>c</sup> | Source <sup>d</sup> |
|--|-----------------------------|-----------------------------|---------------------------------------|---------------------|
| NORTH SHORE                              |                             |                             |                                       |                     |
| 212 Salisbury Beach, Salisbury           | 0                           | 0                           | 0                                     | SM                  |
| 13 Parker River NWR, Newbury/Rowley      | 5                           | 6 <sup>e</sup>              | 13                                    | JH, RS              |
| 14 Sandy Point St. Res., Ipswich         | 2                           | 2 <sup>e</sup>              | 3                                     | JH, RS              |
| 25 Crane Beach, Ipswich                  | 12                          | 12                          | 26                                    | DR                  |
| SOUTH SHORE                              |                             |                             |                                       |                     |
| 216 Third Cliff, Scituate                | 3                           | 3                           | 1                                     | SH                  |
| 17 Fourth Cliff, Scituate                | 0                           | 0                           | 0                                     | SH                  |
| 18 Duxbury Beach, Duxbury                | 2                           | 2                           | 0                                     | SH                  |
| 19 Plymouth Beach, Plymouth              | 1                           | 1                           | 0                                     | SH                  |
| 20 Scusset Beach, Sagamore               | 2                           | 2                           | 7                                     | SH                  |
| UPPER CAPE                               |                             |                             |                                       |                     |
| 21 Black Beach, Falmouth                 | 0                           | 0                           | 0                                     | BB                  |
| 22 Washburn Island, Falmouth             | 0                           | 0                           | 0                                     | FL                  |
| 23 South Cape Beach, Mashpee             | 2                           | 2                           | 8                                     | FL                  |
| 24 Popponesset Beach, Mashpee            | 1                           | 1                           | 3                                     | SH                  |
| 25 Town Neck Beach, Sandwich             | 1                           | 1                           | 3                                     | ES                  |
| 26 Springhill Beach, Sandwich            | 3                           | 3                           | 0                                     | ES                  |
| 27 East Sandwich Beach, Sandwich         | 0                           | 0                           | 0                                     | ES                  |
| 28 Scorton Creek, Sandwich               | 5                           | 5                           | 7                                     | ES                  |
| 29 Sandy Neck, Barnstable                | 5                           | 5                           | 14                                    | ES                  |
| 30 Dead Neck, Barnstable                 | 1                           | 1                           | 0                                     | SH                  |
| 31 Long Beach, Barnstable                | 1                           | 1                           | 0                                     | ES                  |
| 32 Kalmus Park Beach, Hyannis            | 2                           | 2                           | 6                                     | HB, SH              |
| 33 Gray's Beach, Yarmouth                | 0                           | 0                           | 0                                     | SH                  |
| 34 Seagull Beach, Yarmouth               | 0                           | 0                           | 0                                     | SM                  |
| 35 Radio City, Yarmouth                  | 0                           | 0                           | 0                                     | SM                  |
| 36 West Dennis Beach, Dennis             | 0                           | 0                           | 0                                     | SH                  |
| 37 Chapin Beach, Dennis                  | 0                           | 0                           | 0                                     | ES                  |
| LOWER CAPE                               |                             |                             |                                       |                     |
| 38 Harding Beach, Chatham                | 2                           | 2                           | 6                                     | MM                  |
| 39 Harding Beach Point, Chatham          | 0                           | 0                           | 0                                     | MM                  |
| 40 North Monomoy Island, Chatham         | 0                           | 0                           | 0                                     | CM                  |
| 41 South Monomoy Island, Chatham         | 2                           | 2                           | 0                                     | CM                  |
| 42 South Beach Island, Chatham           | 5                           | 5                           | 12                                    | MM                  |
| 43 Nauset Beach, Chatham                 | 2                           | 2                           | 4 <sup>i</sup>                        | MG, KJ              |
| 44 Nauset Beach, Orleans                 | 4                           | 4                           | 7                                     | MG                  |
| 45 Nauset Spit (Heights), Orleans        | 5                           | 8 <sup>g</sup>              | 12                                    | MG                  |
| 46 New Island, Orleans                   | 0                           | 0                           | 0                                     | SH                  |
| 47 Coast Guard Beach, Eastham            | 6                           | 7 <sup>j</sup>              | 14                                    | KJ, MM, JM          |
| 48 Marconi Beach, Wellfleet <sup>h</sup> | 6                           | 6                           | 19                                    | KJ, JM              |
| 49 Great Island, Wellfleet               | 0                           | 0                           | 0                                     | SM                  |

Table 1. Continued.

| Location                             | Number of pairs |                | No.<br>chicks<br>fledged | Source     |
|--------------------------------------|-----------------|----------------|--------------------------|------------|
|                                      | Index<br>count  | Total<br>count |                          |            |
| Jeremy Point, Wellfleet              | 1               | 3              | 2                        | JB, KJ, JM |
| Pammet Harbor, Truro                 | 0               | 0              | 0                        | HB         |
| Corn Hill Beach, Truro               | 0               | 0              | 0                        | HB         |
| Pilgrim Beach, Truro                 | 0               | 0              | 0                        | HB         |
| Ballston Beach, Truro                | 0               | 0              | 0                        | DM, SM     |
| Wood End (Long Pt.), Provincetown    | 0               | 1              | 4                        | KJ, JM     |
| Race Point Beach, Provincetown       | 2               | 2              | 5                        | KJ, JM     |
| Mission Bell, Provincetown           | 1               | 1              | 3                        | KJ, JM     |
| Frenchie's, Provincetown             | 2               | 2              | 7                        | KJ, JM     |
| Exit 9, Provincetown                 | 2               | 2              | 7                        | KJ, JM     |
| Armstrong Cut, Truro                 | 1               | 1              | 3                        | KJ, JM     |
| High Head, Truro                     | 3               | 3              | 10                       | KJ, JM     |
| BUZZARDS BAY                         |                 |                |                          |            |
| Stony Point Dike, Wareham            | 0               | 0              | 0                        | BB         |
| Long Beach Point, Wareham            | nd <sup>i</sup> | nd             | nd                       | -          |
| Little Harbor Beach, Wareham         | 0               | 0              | 0                        | BB         |
| West Island, Fairhaven               | 1               | 1              | 2                        | JH, BB     |
| Round Hill Beach, Dartmouth          | 0               | 0              | 0                        | JH         |
| Salter's Pond, Dartmouth             | 0               | 0              | 0                        | JH         |
| Little Beach/Barney's Joy, Dartmouth | 9               | 12             | 17                       | JH         |
| Gooseberry Neck, Westport            | 2               | 2              | 2                        | JH         |
| Horseneck Beach                      | 6               | 7              | 5                        | JH         |
| Acoaxet, Westport                    | 1               | 1              | 3                        | PJ         |
| Cockeast Pond, Westport              | 1               | 1              | 0                        | PJ         |
| Richmond Pond, Westport              | 1               | 1              | 0                        | PJ         |
| Bay Point, Swansea                   | 0               | 0              | 0                        | BB         |
| MARTHA'S VINEYARD/ELIZABETH ISLANDS  |                 |                |                          |            |
| Hart Haven, Oak Bluffs               | 2               | 2              | 3                        | DS         |
| Eel Pond/Little Beach, Edgartown     | 0               | 0              | 0                        | DS         |
| Silvia State Beach, Edgartown        | 0               | 0              | 0                        | DS         |
| East Beach, Chappaquidick            | 1               | 2 <sup>i</sup> | 0                        | DS         |
| Cape Pogue (Little Neck), Chappaq.   | 2               | 2 <sup>i</sup> | 0                        | DS         |
| Wasque, Chappaquiddick               | 2               | 2 <sup>i</sup> | 1                        | DS         |
| Norton Point, Edgartown              | 0               | 0              | 0                        | DS         |
| Tisbury Gt. Pd. (Quansoo), Chilmark  | 0               | 1              | 0                        | DS         |
| Edgartown Great Pond, Edgartown      | 0               | 0              | 0                        | DS         |
| Squibnocket, Chilmark                | 1               | 2              | 4                        | DS         |
| Long Beach, Gay Head                 | 0               | 0              | 0                        | DS         |
| Tashmoo, Tisbury                     | 1               | 1              | 2                        | DS         |
| Lobsterville, Gay Head               | 0               | 0              | 0                        | DS         |
| Nomans Land                          | nd              | nd             | nd                       | -          |
| Naushon Island                       | 0               | 0              | 0                        | JHa        |
| Pasque Island                        | 3               | 3              | 5                        | JHa        |
| Nashawena Island                     | 2               | 2              | 3                        | JHa        |

Table 1. Continued.

| Location                  | Number of pairs |                | No.<br>chicks<br>fledged | Source      |
|---------------------------|-----------------|----------------|--------------------------|-------------|
|                           | Index<br>count  | Total<br>count |                          |             |
| 292-Cuttyhunk Island      | 7               | 7              | 13                       | BB, JHa, SM |
| NANTUCKET                 |                 |                |                          |             |
| 93 Great Point            | 6               | 6              | 2                        | ML          |
| 94 The Galls              | 2               | 2              | 5                        | ML          |
| 95 Coskata Inlet (Coatue) | 0               | 0              | 0                        | ML          |
| 96 Quidnet                | 0               | 0              | 0                        | ML          |
| 97 Siasconset Beach       | 0               | 0              | 0                        | ML          |
| 98 Low Beach              | 0               | 0              | 0                        | ML          |
| 99 Tom Nevers Head        | 1               | 1              | 0                        | ML          |
| 100 Surfside              | 0               | 0              | 0                        | ML          |
| 101 Smith Point           | 1               | 1              | 3                        | ML          |
| 302 Tuckernuck Island     | 1               | 1              | 0                        | ML          |
| 303 Muskeget Island       | 3               | 3              | nd                       | ML          |
| TOTALS                    | 148             | 160            | 276 <sup>k</sup>         |             |

<sup>a</sup> Index count = total territorial pairs counted during 1-9 June 1991 (International Census period).

<sup>b</sup> Total count = total territorial pairs counted during entire 1991 breeding season.

<sup>c</sup> Fledging is defined as chicks  $\geq$  25 days of age or observed in flight, whichever comes first.

<sup>d</sup> Key to sources: BB = Brad Blodget, CM = Chris Miller, DM = David Mansky, DR = David Rimmer, DS = Deborah Swanson, ES = Eric Strauss, FL = Francis LeBaron, HB = Henry Barbour, JB = Jennifer Brown, JH = John Hill, JHa = Jeremy Hatch, JHe = Joann Healey, JM = John Meisel, KJ = Kyle Jones, MG = Mark Genaris, MM = Michael McCarthy, PJ = Peter Johnson, RJ = Richard Johnson, RS = Robert Springfield, SH = Scott Hecker, SM = Scott Melvin

<sup>e</sup> One of 6 pairs at Parker River NWR is believed to have renested at Sandy Point State Reservation. This pair is tallied in both site totals, but is counted only once in the state total.

<sup>f</sup> Number of chicks fledged was determined for only 1 of the 2 pairs at Nauset Beach-Chatham.

<sup>g</sup> One of 7 pairs at Coast Guard Beach is believed to have renested at Nauset Spit. This pair is tallied in both site totals, but is counted only once in the state total.

Table 1. Continued

<sup>h</sup> Includes a pair that nested south of LeCount Hollow.

<sup>i</sup> nd = no data available

<sup>j</sup> One of 2 pairs at East Beach is believed to have renested at Wasque. This pair is tallied in both site totals, but is counted only once in the state total.

<sup>k</sup> Number of chicks fledged is based on data from 156 of 160 pairs.

Table 2. Summary of abundance and productivity of Piping Plovers in Massachusetts, 1986-1991.

| Year | Total count <sup>a</sup> | Index count <sup>b</sup> | Mean chicks fledged/pair | No. (% of total) pairs with fledge data |
|------|--------------------------|--------------------------|--------------------------|---|
| 1991 | 160                      | 148                      | 1.72                     | 156 (98)                                |
| 1990 | 140 <sup>c</sup>         | 111                      | 1.38                     | 125 (89)                                |
| 1989 | 137                      | -                        | 1.59                     | 123 (90)                                |
| 1988 | 134                      | -                        | 1.29                     | 114 (85)                                |
| 1987 | 126                      | -                        | 1.07                     | 89 (71)                                 |
| 1986 | 139                      | -                        | -                        | -                                       |
| 1985 | 131                      | -                        | -                        | -                                       |

<sup>a</sup> Total count = total territorial pairs counted during entire 1991 breeding season.

<sup>b</sup> Index count = total territorial pairs counted during 1-10 June 1991 (International Census).

<sup>c</sup> Corrected from original total count of 139 pairs (S.M. Melvin. 1990. Status of piping plovers in Massachusetts - 1990 summary. Mass. Div. Fish. and Wildl. unpubl. rep. 5pp.).

# 1991 International Piping Plover Census -- Massachusetts

| County     | Site name                       | Census Date | # Pairs | # Adults | Covered Km | Censusers                                  |
|------------|---------------------------------|-------------|---------|----------|------------|--|
| BARNSTABLE | Harding's Beach Point           | 6/3/91      | 0       | 0        | 4.8        | 1<br>McCarthy, Michael L.                  |
| BARNSTABLE | Harding's Beach                 | 6/2/91      | 2       | 4        | 2.4        | 3<br>McCarthy, Michael L.                  |
| BARNSTABLE | Monomoy NWR,                    | 6/4/91      | 2       | 4        | 8.8        | 6<br>Miller, Christopher                   |
| BARNSTABLE | North and South Monomoy Islands | 6/4/91      | 2       | 3        | 11.3       | 6<br>Jones, Kyle                           |
| BARNSTABLE | North Beach-Chatham             | 6/4/91      | 2       | 3        | 11.3       | 6<br>Jones, Kyle                           |
| BARNSTABLE | South Beach Island              | 6/2/91      | 5       | 13       | 9.7        | 6<br>McCarthy, Michael L.<br>Melvin, Scott |
| BARNSTABLE | Dead Neck                       | 6/1/91      | 1       | 1        | 1.6        | 1<br>Hecker, Scott                         |
| BARNSTABLE | Popponesset Spit                | 6/1/91      | 1       | 1        | 1.6        | 1<br>Hecker, Scott                         |
| BARNSTABLE | Chapin Beach, Dennis            | 6/1/91      | 1       | 1        | 2.4        | 1<br>Hecker, Scott                         |
| BARNSTABLE | Gray's Beach                    | 6/3/91      | 0       | 0        | 4.0        | 1<br>Strauss, Dr. Eric                     |
| BARNSTABLE | Radio City Beach                | 6/3/91      | 0       | 0        | 0.4        | 1<br>Hecker, Scott                         |
| BARNSTABLE | Seagull Beach                   | 6/3/91      | 0       | 0        | 0          | 1<br>Melvin, Scott                         |
| BARNSTABLE | West Dennis Beach               | 6/2/91      | 0       | 0        | 0.6        | 1<br>Melvin, Scott                         |
| BARNSTABLE | South Cape Beach                | 6/1/91      | 2       | 5        | 1.6        | 7<br>LeBaron, Francis N.                   |
| BARNSTABLE | Washburn Island                 | 6/7/91      | 0       | 0        | 1.6        | 2<br>LeBaron, Francis N.                   |
| BARNSTABLE | Kalmus Park, Hyannis            | 6/7/91      | 2       | 4        | 3.0        | 1<br>McLean, Sandy<br>Strauss, Dr. Eric    |
| BARNSTABLE | Long Beach, Centerville         | 6/7/91      | 1       | 2        | 4.0        | 1<br>Barbour, Henry<br>Strauss, Dr. Eric   |
| BARNSTABLE | High Head                       | 6/7/91      | 3       | 6        | 3.2        | 2<br>Jones, Kyle                           |
| BARNSTABLE | Coast Guard Beach               | 6/5/91      | 6       | 12       | 1.6        | 1<br>Meisel, John                          |
| BARNSTABLE | (incl. Nauset Light)            | 6/7/91      | 5       | 10       | 3.2        | 2<br>Genaris, Mark                         |
| BARNSTABLE | Nauset Spit (Heights)           | 6/3/91      | 0       | 0        | 2.4        | 2<br>Genaris, Mark<br>Barbour, Henry       |
| BARNSTABLE | New Island                      | 6/7/91      | 4       | 10       | 2.4        | 2<br>Genaris, Mark                         |
| BARNSTABLE | North Beach (Orleans),          | 6/7/91      | 4       | 10       | 2.4        | 2<br>Genaris, Mark                         |
| BARNSTABLE | public beach S 1.5 mi           | 6/6/91      | 0       | 0        | 4.8        | 1<br>Barbour, Henry<br>Jones, Kyle         |
| BARNSTABLE | Long Point/ Woodend             | 6/6/91      | 0       | 0        | 1.0        | 2<br>Barbour, Henry                        |
| BARNSTABLE | Pilgrim Beach,                  | 6/6/91      | 0       | 0        | 1.0        | 2<br>Barbour, Henry                        |
| BARNSTABLE | Beach Point to Truro            | 6/1/91      | 2       | 4        | 4.0        | 1<br>Meisel, John                          |
| BARNSTABLE | Race Point, north beach         | 6/1/91      | 2       | 4        | 4.0        | 1<br>Meisel, John                          |

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|            |  |        |   |    |      |   |   |
|------------|--|--------|---|----|------|---|---|
| BARNSTABLE | Race Point, south beach,<br>Provincetown & Truro                           | 6/3/91 | 6 | 11 | 10.5 | 1 | Jones, Kyle   |
| BARNSTABLE | East Sandwich Beach,<br>Sandwich   | 6/3/91 | 0 | 0  | 1.0  | 1 | Strauss, Dr. Eric   |
| BARNSTABLE | Sandy Neck Beach,<br>West Barnstable                                       | 6/1/91 | 5 | 10 | 14.0 | 1 | Strauss, Dr. Eric   |
| BARNSTABLE | Scorton Creek/Scorton Neck Beach,<br>Sandwich                              | 6/8/91 | 5 | 10 | 4.0  | 1 | Strauss, Dr. Eric   |
| BARNSTABLE | Springhill Beach,<br>Sandwich  | 6/9/91 | 3 | 6  | 2.5  | 1 | Strauss, Dr. Eric   |
| BARNSTABLE | Town Neck Beach,<br>Sandwich   | 6/6/91 | 1 | 2  | 1.6  | 1 | Strauss, Dr. Eric   |
| BARNSTABLE | Ballston Beach   | 6/3/91 | 0 | 0  | 2.4  | 2 | Manski, David<br>Melvin, Scott<br>Barbour, Henry                                |
| BARNSTABLE | Pilgrim Beach to Harbor Bar<br>(Corn Hill Bch, Pond Village Bch, N. Pamet) | 6/6/91 | 0 | 0  | 5.0  | 2 |   |
| BARNSTABLE | Great Island   | 6/3/91 | 0 | 0  | 5.6  | 1 | Melvin, Scott   |
| BARNSTABLE | Jeremy Point   | 6/8/91 | 1 | 3  | 4.8  | 2 | Jones, Kyle<br>Brown, Jennifer<br>Jones, Kyle<br>Meisel, John<br>Barbour, Henry |
| BARNSTABLE | Marconi Beach<br>(incl. LeCount Hollow)                                    | 6/3/91 | 6 | 12 | 3.2  | 2 |   |
| BARNSTABLE | South Pamet, Fisher Rd.<br>(Pamet Harbor)                                  | 6/6/91 | 0 | 0  | 1.0  | 2 |   |
| BARNSTABLE | Black Beach<br>(Sippewisset)   | 6/5/91 | 0 | 0  | 0.8  | 2 | Blodget, Bradford G.<br>Atwell, Gerry<br>Davis, Bill<br>Blodget, Bradford G.    |
| BRISTOL    | Bay Point  | 6/4/91 | 0 | 0  | 0.8  | 1 |   |
| BRISTOL    | Round Hill & Dartmouth Beach   | 6/2/91 | 0 | 0  | 1.0  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Salters Pond   | 6/2/91 | 0 | 0  | 0.5  | 1 | Hill, John O., Jr.  |
| BRISTOL    | West Island town beach   | 6/2/91 | 1 | 2  | 2.0  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Acoaxet Beach  | 6/8/91 | 1 | 2  | 0.5  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Cockeast/Elephant Rock Beach   | 6/8/91 | 1 | 2  | 1.2  | 1 | Johnston, Peter   |
| BRISTOL    | Gooseberry Neck  | 6/2/91 | 2 | 4  | 2.4  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Horseneck Beach  | 6/2/91 | 6 | 12 | 4.0  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Little Beach/Barneys Joy Beach   | 6/3/91 | 9 | 18 | 3.2  | 1 | Hill, John O., Jr.  |
| BRISTOL    | Richmond Pond  | 6/8/91 | 1 | 2  | 1.0  | 1 | Johnston, Peter   |

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|           |  |        |    |    |      |   |                      |
|-----------|--|--------|----|----|------|---|----------------------|
| DUKES     | Cuttyhunk Island                         | 6/7/91 | 7  | 14 | 4.8  | 4 | Melvin, Scott        |
| DUKES     | Nashawena Island                         | 6/6/91 | 2  | 4  |      |   | Hatch, Dr. Jeremy J. |
| DUKES     | East Beach                               | 6/8/91 | 1  | 2  | 4.8  |   | Hatch, Dr. Jeremy J. |
| DUKES     | Edgartown Great Pond                     | 6/1/91 | 0  | 0  | 2.4  |   | Swanson, Debra L.    |
| DUKES     | Hart Haven                               | 6/1/91 | 2  | 3  | 1.6  |   | Swanson, Debra L.    |
| DUKES     | Little Beach/Eel Pond                    | 6/3/91 | 0  | 0  | 0.8  |   | Swanson, Debra L.    |
| DUKES     | Little Neck                              | 6/9/91 | 2  | 4  | 2.4  |   | Swanson, Debra L.    |
| DUKES     | Norton Point                             | 6/3/91 | 0  | 0  |      |   | Swanson, Debra L.    |
| DUKES     | Silvia State Beach                       | 6/3/91 | 0  | 0  |      |   |                      |
| DUKES     | Wasque                                   | 6/8/91 | 2  | 4  | 1.6  |   | Swanson, Debra L.    |
| DUKES     | Naushton Island                          | 6/6/91 | 0  | 0  |      |   | Hatch, Dr. Jeremy J. |
| DUKES     | (incl. Nonamesset, Uncatena, Weepeckets) | 6/6/91 | 3  | 6  |      |   | Hatch, Dr. Jeremy J. |
| DUKES     | Pasque Island                            | 6/6/91 | 0  | 0  | 2.4  |   | Swanson, Debra L.    |
| DUKES     | Long Beach                               | 6/9/91 | 0  | 0  | 0.8  |   | Johnson, Richard     |
| DUKES     | Squibnocket                              | 6/5/91 | 1  | 2  | 1.6  |   | Johnson, Richard     |
| DUKES     | Quansoo                                  | 6/7/91 | 0  | 0  | 1.2  |   | Johnson, Richard     |
| DUKES     | Tashmoo                                  | 6/3/91 | 1  | 2  | 1.6  |   | Swanson, Debra L.    |
| ESSEX     | Crane Beach                              | 6/9/91 | 12 | 24 | 9.0  | 2 | Kimmer, David        |
| ESSEX     | Sandy Point State Reservation            | 6/6/91 | 2  | 5  | 1.6  | 1 | Hopping, Russ        |
| ESSEX     | Parker River NWR                         | 6/6/91 | 5  | 11 | 10.3 | 1 | Healey, Joann        |
| ESSEX     | Salisbury Beach State Park               | 6/8/91 | 0  | 0  | 2.6  | 1 | Springfield, Bob     |
| NANTUCKET | Coskata Inlet                            | 6/3/91 | 0  | 0  |      |   | Melvin, Scott        |
| NANTUCKET | Great Point                              | 6/3/91 | 6  | 12 | 1.6  | 1 | Litchfield, Marcia   |
| NANTUCKET | The Galls                                | 6/1/91 | 2  | 4  | 1.6  | 1 | Litchfield, Marcia   |
| NANTUCKET | Surfside                                 | 6/3/91 | 0  | 0  |      |   |                      |
| NANTUCKET | Low Beach                                | 6/3/91 | 0  | 0  |      |   |                      |
| NANTUCKET | Quidnet                                  | 6/3/91 | 0  | 0  |      |   |                      |
| NANTUCKET | Stasconset Beach                         | 6/3/91 | 0  | 0  |      |   |                      |
| NANTUCKET | Tom Nevers Beach                         | 6/8/91 | 1  | 2  | 1.6  | 1 | Litchfield, Marcia   |

# 1991 International Piping Plover Census -- Massachusetts

|           |                                   |         |   |   |     |   |                      |
|-----------|-----------------------------------|---------|---|---|-----|---|----------------------|
| NANTUCKET | Muskeget                          | 6/10/91 | 3 | 6 | 1.6 | 1 | Litchfield, Marcia   |
| NANTUCKET | Smith's Point                     | 6/1/91  | 1 | 2 | 3.2 | 1 | Litchfield, Marcia   |
| NANTUCKET | Tuckernuck                        | 6/10/91 | 1 | 2 | 6.4 | 1 | Litchfield, Marcia   |
| PLYMOUTH  | Duxbury Beach/Gurnet/Saquish Neck | 6/1/91  | 2 | 2 | 8.0 | 1 | Hecker, Scott        |
| PLYMOUTH  | Little Harbor Beach               | 6/5/91  | 0 | 0 | 0.7 | 2 | Blodget, Bradford G. |
| PLYMOUTH  | Stony Point dike                  | 6/5/91  | 0 | 0 | 0.4 | 2 | Atwell, Gerry        |
| PLYMOUTH  | Plymouth Beach                    | 6/1/91  | 1 | 2 | 4.0 | 1 | Blodget, Bradford G. |
| PLYMOUTH  | Scusset Beach                     | 6/1/91  | 2 | 2 | 1.6 | 2 | Atwell, Gerry        |
| PLYMOUTH  | Fourth Cliff, Humarock            | 6/1/91  | 0 | 0 | 0.8 | 1 | Hecker, Scott        |
| PLYMOUTH  | Third Cliff                       |         | 3 | 3 | 0.8 | 1 | Hecker, Scott        |

## Censusers:

|                      |  |               |
|----------------------|--|---------------|
| Atwell, Gerry        | USFWS, Great Meadows NWR, Weir Hill Rd., Sudbury, MA 01776                               |               |
| Barbour, Henry       | P.O. Box 522, Barnstable, MA 02630   | (508)362-3687 |
| Barbour, Henry       | P.O. Box 141 Fairmount Rd., S. Dennis, MA 02660  | (508)398-2000 |
| Blodget, Bradford G. | Massachusetts Division of Fish & Wildlife, 1 Rabbit Hill Rd., Westborough, MA 01581-3337 | (508)792-7270 |
| Brown, Jennifer      | Cape Cod National Seashore, South Wellfleet, MA 02663                                    | (508)487-2100 |
| Cardoza, James       | Massachusetts Division of Fish & Wildlife, 1 Rabbit Hill Rd., Westborough, MA 01581-3337 | (508)792-7270 |
| Davis, Bill          | Massachusetts Division of Fish & Wildlife, 1 Rabbit Hill Rd., Westborough, MA 01581-3337 | (508)792-7270 |
| Genaris, Mark        | P.O. Box 244, E. Dennis, MA 02641  | (508)385-8576 |
| Hatch, Dr. Jeremy J. | Biology Dept., U. Mass., Boston, MA 02125  | (617)287-6615 |
| Hcaley, Joann        | USFWS, Parker River NWR, Northern Blvd., Plum Island, Newburyport, MA 01950              | (508)465-5753 |
| Hecker, Scott        | Massachusetts Audubon Society, Lincoln, MA 01773   | (617)259-9500 |
| Hill, John O., Jr.   | 430 Potomska Rd., South Dartmouth, MA 02748  | (508)990-0505 |
| Hopping, Russ        | 401 Ipswich Road, Boxford, MA 01920  |               |
| Johnson, Richard     | RFD 504B, Vineyard Haven, MA 02568   | (508)693-3173 |
| Johnston, Peter      | 57 Lexington St., North Dartmouth, MA 02747  | (508)990-0505 |
| Jones, Kyle          | Cape Cod National Seashore, South Wellfleet, MA 02663                                    | (508)487-2100 |
| LeBaron, Francis N.  | P.O. Box 779, Mashpee, MA 02649  | (508)477-4478 |
| Litchfield, Marcia   | Box 201, Dunstable, MA 01827   | (508)649-6760 |

# 1991 International Piping Plover Census -- Massachusetts

Censusers (cld.):

Lynch, David  
Manski, David  
McCarthy, Michael L.  
McLean, Sandy  
Meisel, John  
Melvin, Scott  
Miller, Christopher  
Rimmer, David  
Springfield, Bob  
Strauss, Dr. Eric  
Swanson, Debra L.

Cape Cod National Seashore, South Wellfleet, MA 02663  
Cape Cod National Seashore, South Wellfleet, MA 02663  
Box 24W, Metoxit Point, Waquoit, MA 02536  
Cape Cod National Seashore, South Wellfleet, MA 02663  
Massachusetts Division of Fish & Wildlife, Westboro, MA 01581  
Monomoy NWR, Chatham, MA 02633  
The Trustees of Reservations, 572 Essex St., Beverly, MA 01915  
USFWS, Parker River NWR, Northern Blvd., Plum Island, Newburyport, MA 01950  
Biology Dept., Univ. Massachusetts at Boston, Boston, MA 02125  
RFD 504B, Vineyard Haven, MA 02568

(508)487-2100  
(508)487-2100  
(508)548-9340  
(508)792-7270  
(508)945-0594  
(508)465-5753  
(617)287-6600  
(508)693-3173